By J. William Sparks, MD
Director, Pediatric Anesthesia Division
Naval Medical Center San Diego

Following the catastrophic results of September 11, 2001, the South East Asian tsunami (2004) as well as Hurricanes Katrina and Rita (2005), medical professionals have heightened their preparedness and responsiveness to natural disasters. As a consequence of these cataclysmic events, political and medical community leaders have moved disaster medicine and disaster management to the forefront of conversation.

As a Navy anesthesiologist, my initial excursion into the field of disaster medicine came in the wake of the 2004 tsunami that afflicted much of Southeast Asia. The USNS Mercy (www.mercy.navy.mil) is one of two Navy hospital ships uniquely qualified to provide tertiary medical and surgical care anywhere in the world. The primary role of the “floating hospital at sea” is trauma management and medical transport of military troops. As a secondary function, the ship is designed to provide medical and surgical capabilities to assist in the relief of natural or man-made domestic and international disasters. In spite of this capability, the Mercy was rarely used in a humanitarian capacity in the past. Responding to the crisis, The Mercy was deployed as part of Operation Unified Assistance (OAU), the United States’ military response to assist in the initial disaster and humanitarian crisis that occurred following the tsunami.

The tsunami brought about devastating destruction of medical infrastructure within the Aceh province of Indonesia. The vast majority of military, psychiatric, private and provincial...
By Allison Kinder Ross, MD
Duke University Medical Center, Durham, NC

Please let me start by expressing my appreciation to the readers who have provided feedback, mostly positive, on the changes in the Newsletter graphics. Ray Hall at SPA headquarters is doing a terrific job working with Dr. Malviya and me to update our multimedia communication to the members. Your feedback has been taken seriously and your opinions will help to drive the look and the content of both the Newsletter and website.

This Summer’s newsletter cover story provides a change in focus from our everyday clinical lives to the experience of a pediatric anesthesiologist during a true natural disaster. Even after the tsunami in 2004, the past two years have tested the medical community’s ability to respond to other disasters such as the floods of New Orleans, the mudslides in the Philippines, and the earthquakes in Indonesia. As anesthesiologists, we are beholden to a certain standard of safety that must not be abandoned when placed in these circumstances, but we must be flexible when put in the position to provide care without the usual amenities.

Perhaps this article provided by Dr. Sparks will prompt some to consider becoming volunteers to join the ongoing missionary work that is worldwide. There are a variety of opportunities to provide care for children who are in unfortunate circumstances, with commitments as short as three days or as long as several months.

Dr. Quentin Fisher, who heads our SPACIES group of the SPA, has recommended several resources such as our own website, www.pedsanesthesia.org/vmsa_search.iphtml, the AAP’s section on International Child Health at http://www.aap.org/sections/ich/, and the AAP’s section for the Child Disaster Network at http://www.aap.org/disaster/. Any of these websites can help direct the practitioner to programs that are in need of medical volunteers. There is also an International Volunteer Anesthesia Discussion List through SPA that may be joined by sending an e-mail to spacies-list-admin@pedsanesthesia.org and typing “SPACIES Discussion List” in the subject line.

The experience gained in a third-world country under normal conditions may never truly prepare one for a disaster zone, but there will be knowledge gained on how to manage a child without the monitoring, drugs, and supplies to which we are accustomed. Please also read about our SPA-sponsored fellow and the work that is being done through that mission. I hope everyone enjoys the cover story and I welcome similar stories that would be of interest to the readers of this SPA Newsletter.

In addition to the international focus, we have a nice review of the AHA guidelines for Infective Endocarditis Prophylaxis that highlights the changes in practice, and a thorough review of obstructive sleep apnea. Both of these topics are very timely and should be well-received. Additional information on these subjects may be found in their entirety on the SPA website.

As always, thank you to the Associate Editors and Contributing Editors for their contributions. The help is most appreciated and I encourage any member to contact me at ross0016@mc.duke.edu with any interesting topics, articles, or ideas that you may have.
Dear Colleagues:

I trust that all are having a good summer. The work of the Society continues even during the summer break. The task force working on the pediatric anesthesia quality improvement initiative has been working diligently and should be ready to present their recommendations in the fall. The group’s work represents a collaborative effort aimed at identifying reasons for perioperative mishaps and ways of eliminating or reducing the likelihood of these happening in the future.

SPA members also are actively working to share information and learn from each other through the regional anesthesia initiative (Pediatric Regional Anesthesia Network or PRAN). We look forward to more information on the group’s initial experience.

The Society remains committed to supporting opportunities for pediatric anesthesia education and networking with our international colleagues. The upcoming Annual Meeting in San Francisco (October 12, 2007) will be a joint meeting with the Association of Pediatric Anesthetists from the United Kingdom. Dr. Valerie Armstead (SPA) and Dr. Neil Morton from the UK have put together an excellent educational program and an opportunity to meet colleagues.

The SPA international education efforts include opportunities to improve pediatric-oriented anesthesia education outside of the United States as well. Through its collaborations with the World Federation of Societies of Anesthesia (WFSA), SPA provides support for fellowship training in pediatric anesthesia.

In this edition of the SPA Newsletter, you will find a report from Dr. Charlie Coté highlighting the WFSA program. Finally, the SPA Board has committed to growing the SPA Education and Research Fund so that we can encourage and support the educational offerings and opportunities for creating new knowledge in the specialty through grants. I urge you to make a tax-deductible contribution to the SPA Education and Research Fund (www.pedsanesthesia.org).

The Society is doing well entering our 21st year because of the collaborative efforts and hard work of our members. In order to make the programs and projects even more effective, I encourage you to contribute your ideas and also to participate in SPA committees that interest you. Please contact me (jay.deshpande@vanderbilt.edu) if you have comments or suggestions. I look forward to seeing you in San Francisco.

The “First” Fellow: One fellow’s journey through the trials and tribulations of a newly ACGME-accredited pediatric fellowship

Robert Bryskin, MD
Former fellow
Duke University Medical Center

Whenever one finds oneself in a new institution, it is easy to think of the things that could be changed. In fact, many hours spent in my residency were dedicated to that single goal. Well, what if you are in a place that has no established rules and vague boundaries? What if you are the one that defines the system? Sure there are the pediatric fellowship requirements set forward by the ACGME, but as many Fellowship Directors know, these commandments are not set in stone. This is where I begin my tale. The year was 2006, I was freshly graduated from my residency, and the stage was set at a newly ACGME-approved pediatric fellowship in a major academic center. Now before I go on, one may ask, why choose such a place? Why not go for an established program? In my case, beyond an opportunity to etch a path, thrive for challenge and sense of adventure, laid a geographic necessity. My wife was starting an internal medicine subspecialty fellowship at the same institution and I followed.

On the first day I met with my Fellowship Director and outlined my goals. The aspirations were set high, the mood elevated and following a month of close supervision, I was released into the wilderness of the hospital. The skills required for a pediatric anesthesiologist are not gathered in the domain of the pediatric ORs alone, but rather extend across many specialties within the hospital. These include Neonatal ICU, Pediatric ICU and pain; unfortunately, none of these are prepared to educate an anesthesia fellow, and I initially struggled to find my place. Despite the enthusiastic welcome by the pediatric anesthesia staff, even within the OR world, I had to cross divisional boundaries into cardiothoracic, regional, transplant, off-floor, imaging and ambulatory centers. These are territorial establishments and breaking in occurs at a snail’s speed even in the most organized and willing departments. Once I learned to get around the red tape, I realized that being the sole pediatric fellow meant that I could choose what and how much I wanted to do. This forced me early on to examine what areas interested me the most and to mold my education towards that direction.

Continued on Page 8
The first wave of civilian medical professionals from the non-governmental organization Project HOPE embarked aboard the ship while in Singapore in late January 2005. The addition of over 200 civilian colleagues brought a sense of purpose and positive energy that was in great need. Weeks of cleaning, reorganizing, and adjusting to new living and working environments had tempered our initial excitement. With the arrival of the civilians, we all desired to channel our energy to doing the most good for the most people. To their credit, the civilian medical teams seamlessly integrated into the Mercy medical treatment facility. They quickly assisted with final preparations for the medical/surgical wards as well as the ICU/PACU areas. The anesthesia team consisted of three anesthesiologists (one Navy and two civilian) and a Navy CRNA for the first half of the tsunami relief mission and three anesthesiologists and two CRNAs (all providers were civilian except for me) in the second half of the relief mission.

Our arrival at the site of destruction was met with reservations by many international care groups as well as foreign military medical teams who doubted the need or impact of the “hospital ship from America”. Much of the initial immediate care needs were addressed with the outpouring of international medical and community support. We spent two days off the coast of Banda Aceh before receiving permission from the Indonesian government to care for patients in the area. Our very first case proved our capability and overall net worth for the relief mission. Wahyu was a 10 year old boy who lost both parents and a sister in the tsunami. He was cared for by his uncle who had lost his wife and son as well. Wahyu had developed an aggressive case of appendicitis in the morning of February 6th. His uncle lost his wife and son as well. Wahyu had developed an aggressive case of appendicitis in the morning of February 6th. His uncle took him to all the local facilities as well as the German military medical center. They were denied care due to a lack of operating room availability. His uncle was directed to the beach where the Mercy had established a care facility in order to provide medical treatment as well as triage potential patients for the MTF. It was late afternoon when Wahyu arrived at the beach point of care facility and onshore personnel were preparing to return to the ship. A Project HOPE nurse had spotted Wahyu in his uncle’s arm and quickly notified others before examining Wahyu. He was in obvious need of care, displaying classic signs of a surgical abdomen as well as febrile and hypotensive. An intravenous line was started and Wahyu began to receive fluid. Soon thereafter, Wahyu and his uncle were evacuated by helicopter to the Mercy. Onboard, we learned about the case and prepared the operating room for an exploratory surgery. The fluids Susan had given stabilized Wahyu’s blood pressure and mental status. I discovered that a ten year old Indonesian boy is about the size of a five or six year old

**Wahyu, a 10-year-old boy who lost both parents and his sister in the tsunami, prepares for a helicopter ride to the Mercy for surgery.**

*U.S. Navy photo by Photographer’s Mate 3rd Class Rebecca J. Moat*
American boy. The smallest endotracheal tube I had was a 6.0 cuffed endotracheal tube. I performed a rapid sequence induction and was fortunate that the endotracheal tube fit into his trachea. Wahyu had perforated appendicitis and was septic. He would have likely died had he not received surgical therapy. He spent two days in the ICU and another five days aboard recovering before leaving us. He became the unofficial mascot of the mission and in a sense helped us gain access and acceptance to the ongoing medical relief mission.

Of the 275 surgical procedures completed during the tsunami relief efforts, only eight percent of the cases were directly related to injuries sustained during the actual disaster that occurred six weeks prior to our arrival. Those people who received essential medical care through humanitarian measures had survived the primary assault but were either still wounded from their initial injuries or had medical conditions that preceded the tsunami. We cared for a number of orthopedic cases where untreated fractures had not been corrected for more than six weeks. A burn surgeon treated many scar contractures resulting from burn injuries in both adult and pediatric patients. Also, we performed palliative surgeries on patients with many different forms of cancer including uterine fibroids, large goiter and thyroid tumors, as well as osteosarcoma of the extremity. Finally, we performed routine general surgery cases involving hernia repairs, appendectomies as well as some pediatric cases involving corrections of imperforate anus, cleft lip and palate corrections, removal of tumors and nonfunctioning kidneys and even performed a splenectomy on two children with pathologic splenomegaly.

Our resources and ability to care for critically ill patients proved indispensable. We quickly assimilated into a tertiary-level facility where complex pediatric or adult patients were transferred when they outstripped local resources. We saw a number of critically ill cases where we were able to resuscitate, stabilize and recover the patient to the point where local facilities could complete the needed convalescence. Despite our resources and expertise, we were unable to correct the underlying pathophysiology in a few cases. During the tsunami relief effort, no patient was pronounced dead aboard the ship, but a handful of patients were transferred in morbid condition back to their local communities prior to their expiration.

Many challenges developed during the six months that the Mercy assisted in the relief effort. During an international relief mission, the ability to communicate and garner medical history became extremely arduous at times. Though they worked hard, the few available interpreters were not medically savvy and frequently had difficulty translating medical information. Further, communications between land-based medical teams and the Mercy were inconsistent and at times erroneous. Cultural differences with respect to obtaining consent and agreeing with medical management delayed patient transport and surgical procedures because resolution often meant talking to second or third parties. Ethical considerations about the right course of action or treatment regularly came into play. Halfway through the mission, the transition of civilian medical teams rapidly changed our surgical and medical capability. Finally, the actual discharge of patients from the Mercy, including timing as well as the provision of necessary supplies and medications, was a continuous source of concern.

Specific anesthesia challenges related to appropriate supply and equipment procurement. The Mercy was configured to care mostly for adult patients. Humanitarian Assistance and Disaster Relief (HA/DR) missions involve treating infants and children along with adults. As a result, we struggled to get appropriate sized pediatric equipment and monitoring capability for intraoperative and intensive care use. A lack of medical air limited our flexibility of fresh gas flow during operative cases. The ship had no cell salvage capability due to incompatible materials with our cell salvage machine. Additional equipment deficiencies limited our ability to utilize advanced airway equipment for known and unanticipated difficult airway management.

The United States sent the hospital ship Mercy overseas to provide tertiary support for local care supplied by charitable organizations as well as military medical components from Germany, Australia, Singapore and Japan. During our mission, military and civilian health professionals combined resources and talents to provide care for the patients affected in the Aceh Province in Northern Sumatra, Indonesia. To my knowledge, the Mercy broke ground in proving the success of a collaborative effort aboard a military vessel. This extraordinarily successful “team of teams” concept revolutionized the way military medicine aligns itself with civilian organizations to provide medical care for domestic and international HA/DR missions. I also believe the Mercy effort set the foundation for future federal medical responses to areas afflicted with natural disasters that are overwhelmed by the injured or incapacitated who have no where else to turn for lifesaving treatment.

J. William Sparks, M.D. is an active-duty Navy anesthesiologist practicing in San Diego, California. He is the Director of the Pediatric Anesthesia division at Naval Medical Center San Diego and is currently serving as the Vice Chairman and Chief Medical Officer of the Department of Anesthesiology.
Prevention of infective endocarditis: Guidelines from the American Heart Association

http://circ.ahajournals.org

Summary submitted by Barry D. Kussman, MBBCh, FFA(SA)
Children’s Hospital, Boston, MA

The purpose of this statement is to update the recommendations by the AHA for the prevention of infective endocarditis (IE) that were last published in 1997. The changes are intended to define more clearly when IE prophylaxis is or is not recommended and to provide more uniform and consistent global recommendations.

The major conclusions and changes in the updated recommendations may be summarized as follows:

1. Bacteremia resulting from daily activities is much more likely to cause IE than bacteremia associated with a dental procedure.

2. Only an extremely small number of cases of IE might be prevented by antibiotic prophylaxis even if prophylaxis is 100% effective.

3. Limit recommendations for IE prophylaxis only to those conditions listed in Table 3.

4. Antibiotic prophylaxis is recommended for all dental procedures that involve manipulation of gingival tissues or periaxial region of teeth or perforation of oral mucosa only for patients with underlying cardiac conditions associated with the highest risk of adverse outcome from IE (Table 3.) Regimens are shown in Table 5.

5. Antibiotic prophylaxis is recommended for invasive procedures on the respiratory tract for patients with the conditions listed in Table 3. The same regimen as for dental procedures should be used.

6. For patients with the underlying cardiac conditions listed in Table 3 above who undergo a surgical procedure that involves infected skin, skin structures, or musculoskeletal tissue, it is reasonable that the therapeutic regimen administered for treatment of the infection contain an agent active against staphylococci and β-hemolytic streptococci (such as a anti-staphylococcal penicillin or cephalosporin; vancomycin or clindamycin unable to tolerate a β-lactam).

7. Antibiotic prophylaxis solely to prevent IE is not recommended for genitourinary (GU) or gastrointestinal (GI) tract procedures. However, for patients with the conditions listed in Table 3 above who have an established infection of the GU or GI tract or who receive antibiotic therapy to prevent wound infection or sepsis associated with a GI or GU tract procedure, it may be reasonable that the antibiotic regimen include an agent active against enterococci, such as penicillin, ampicillin, piperacillin, or vancomycin.

8. The writing group reaffirms the procedures noted in the 1997 prophylaxis guidelines for which endocarditis prophylaxis is not recommended and extends this to other common procedures.

TABLE 3. Cardiac Conditions Associated With the Highest Risk of Adverse Outcome From Endocarditis for Which Prophylaxis With Dental Procedures Is Recommended

<table>
<thead>
<tr>
<th>Condition</th>
<th>Prophylaxis with Dental Procedures Is Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prosthetic cardiac valve</td>
<td>Yes</td>
</tr>
<tr>
<td>Previous IE</td>
<td>Yes</td>
</tr>
<tr>
<td>Congenital heart disease (CHD)*</td>
<td>Yes</td>
</tr>
<tr>
<td>Unrepaired cyanotic CHD, including palliative shunts and conduits</td>
<td>Yes</td>
</tr>
<tr>
<td>Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure†</td>
<td>Yes</td>
</tr>
<tr>
<td>Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)</td>
<td>Yes</td>
</tr>
<tr>
<td>Cardiac transplantation recipients who develop cardiac valvulopathy</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Except for the conditions listed above, antibiotic prophylaxis is no longer recommended for any other form of CHD.
†Prophylaxis is recommended because endothelialization of prosthetic material occurs within 6 months after the procedure.

TABLE 5. Regimens for a Dental Procedure

<table>
<thead>
<tr>
<th>Situation</th>
<th>Agent</th>
<th>Regimen: Single Dose 30 to 60 min Before Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Amoxicillin</td>
<td>Adults 2 g Children 50 mg/kg</td>
</tr>
<tr>
<td>Unable to take oral medication</td>
<td>Ampicillin</td>
<td>Adults 2 g IM or IV Children 50 mg/kg IM or IV</td>
</tr>
<tr>
<td>Cefazolin or ceftriaxone</td>
<td>1 g IM or IV Children 50 mg/kg IM or IV</td>
<td></td>
</tr>
<tr>
<td>Allergic to penicillins or ampicillin—oral</td>
<td>Cephalexin*†</td>
<td>Adults 2 g Children 50 mg/kg</td>
</tr>
<tr>
<td>OR</td>
<td>Clindamycin</td>
<td>Adults 600 mg Children 20 mg/kg</td>
</tr>
<tr>
<td>Azithromycin or clarithromycin</td>
<td>500 mg Children 15 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Allergic to penicillins or ampicillin and unable to take oral medication</td>
<td>Cefazolin or ceftriaxone†</td>
<td>Adults 1 g IM or IV Children 50 mg/kg IM or IV</td>
</tr>
<tr>
<td>OR</td>
<td>Clindamycin</td>
<td>Adults 600 mg IM or IV Children 20 mg/kg IM or IV</td>
</tr>
</tbody>
</table>

IM indicates intramuscular; IV, intravenous.
*Or other first- or second-generation oral cephalosporin in equivalent adult or pediatric dosage.
†Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticaria with penicillins or ampicillin.
**The WFSA Pediatric Anesthesia Fellowships: Origins and Perspectives**

By Charles J Coté, MD
Professor of Anesthesia, Harvard Medical School
Director of Clinical Research, Division of Pediatric Anesthesia
Massachusetts General Hospital for Children
Department of Anesthesia and Critical Care, Massachusetts General Hospital
Boston, MA

The World Federation of Societies of Anesthesiologists (WFSA) Pediatric Fellowship programs had their origin in 1996 when education committee members Dr. Haydn Perndt from Tasmania, Dr. Kester Brown from Australia, Dr. David Hatch from England and myself attended the Congreso Latinoamericano de Anestesiologia (CLASA) meeting in /Santiago Chile.

During that visit the vision of Kester Brown was to establish Pediatric Anesthesia Fellowship programs in medically advanced countries for fully trained anesthesiologists from less medically advanced countries. The concept was to train in the same language and return to their country of origin to become the local leaders and educators in pediatric anestheisa.

All candidates had to have their degree in anesthesiology, to be elected or presented by their national society, be able to speak the same language, and to not have difficulty entering the country for training. WFSA would cover the costs for transportation, food and housing and in turn the Fellow promised to return to their country of origin and to provide feedback in the future.

Dr. Silvana Cavallieri, Director of Anesthesia at the Louis Calvo Mackenna Hospital, agreed to establish the first such program. She designed two fellowship programs:

The first consisted of six months of pediatric anesthesia with two months of cardiac anesthesia; the second consisted of a 12-month cardiac anesthesia fellowship. The first fellow began in March 1999 and since that time approximately 12 fellows from 7 Central and South American countries have successfully completed a fellowship program. The average cost of this training was $5,000 USD per trainee.

In 2002 I had the opportunity to attend the All Africa Anaesthesiology Congress (AAAC) in Tunisia as a member of the Executive Committee of the WFSA, and we decided that since the Santiago program had been so successful that it was time to establish programs in Africa. I approached the international representative of Draeger De (Mr. Koen Paradis) and described the Santiago program. He was very excited about this concept of training a lifetime of pediatric anesthesia care at a minimal cost per candidate, but requested that we establish programs in both Sub-Saharan and French speaking Africa.

Dr. Isabel Murat from Paris assisted in finding the French speaking contact, and Dr. Mohammed Salah Ben Ammar agreed to establish a program in Tunis similar to that in Santiago with the financial support of Draeger. Two candidates (one from Ivory Coast and another from Mali) completed training and another fellow is currently training; at least one of these candidates published a paper and made a presentation at the WFSA.

Dr. Adrian Bosenberg also agreed to establish another fellowship in Cape Town, South Africa. Despite political issues and many hurdles, “Bosie” was finally able to begin his program and his recent graduate performed nearly 1,000 pediatric anesthetics!

During The 13th World Congress of Anaesthesiologists (WCA) held in Paris in April, 2004, the Pediatric Subcommittee of the WFSA met and further discussions were held regarding expanding the fellowship programs. Dr. Rebecca Jacob from the Christian Medical College in Vellore, India volunteered to start a program for Asia. Dr Jacob has been a tireless advocate for this program and has now trained 3 individuals (See article on Page 9).

In addition, she wrote a handbook of Pediatric Anesthesia and this is now under revision and will be distributed by the WFSA education committee.

These programs combined have expanded our world-wide community of pediatric anesthesiologists by approximately 20! The main limitation is funding for the fellows. I suspect that if more funding was available we could establish similar programs in other parts of the world. The wonder of this process is that all of the candidates have made enormous sacrifices (leaving spouse, children, country of origin) to train with no financial income during this period; all have returned to their country of origin and not used this advanced training as a means for leaving their country.

The money to support these programs has come from a variety of sources. The WFSA raises money for the education committee (Remember, pediatrics is but a part of the overall world wide educational effort of the WFSA.) through dues of the member societies ($1.25-1.50 per year per member) as well as a portion of the profits of the World Congresses held every four years.

In reality, this always results in a shortfall and this form of fundraising is not a solid basis to support our yearly ongoing efforts.

**Guidelines, from page 7**

- dures, including ear and body piercing, tattooing, and vaginal delivery and hysterectomy.

**Comment:**

As stated by the authors, these new recommendations clearly violate longstanding expectations and practice patterns, with fewer patients now being eligible for IE prophylaxis. This will certainly take some time for the clinician to be at ease with, even though most cases of IE are not caused by surgical procedures. The guidelines now recommend IE prophylaxis for those patients with the highest risk of adverse outcome should they develop IE rather than for those at highest risk of acquiring IE. In the world of IE, congenital heart disease is associated less frequently with IE and with a less morbid outcome should IE develop. If a patient is already receiving an antibiotic, it is prudent to select an antibiotic from a different class rather than to increase the dosage of the current antibiotic. The evidence on which these new guidelines are based is generally Class IIb Level of Evidence B or C (Class II: conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment; LOE B: data derived from a single randomized trial or nonrandomized studies; LOE C: only consensus opinion of experts, case studies, or standard of care). The reader is recommended to study the new guidelines in their entirety.

Continued on page 12
WFSA - CMC Paediatric Anaesthesia Fellowship Program Update

Submitted by Rebecca Jacobs, MD, DA
Christian Medical College
Vellore, India

Our first fellow, (supported by the Canadian Paediatric Anaesthetists) was Dr. Ayyappa Agasar from Bellary, India. He was sent to us by a paediatric surgeon (an alumnus of ours) with the plea to teach him how to handle children with a foreign body in the bronchus. Married with two children, he left his family in Bellary to train with us.

After six months with us, Ayyappa is doing much more than that. He is confident with premature neonates and complicated paediatric cases and his boss tells me that he is a real asset to the teaching faculty in the government medical college he has now joined. I visited him and helped him run a two-day workshop on paediatric anaesthesia for post graduates.

Our second fellow (supported by the American Paediatric Anaesthesia Society) was Dr. Manisha Paul who came to us from Chittagong, Bangladesh.

She was highly recommended by her professor and she lived up to our expectations. A confident, outgoing mother of two found it a bit difficult to leave her young children with her mother-in-law and husband and come such a long way. However, she was always cheerful and willing to learn. In the wards, she was Didi, or sister, to the young patients and their anxious parents. The surgeons were also very fond of her. She is back in Chittagong, putting into practice what she learned here. She has helped conduct a two-day meeting on paediatric anaesthesia. I hope that sometime I will be able to find the funds to visit her and encourage her in her work.

Our present fellow is Mohammed Nasim Kanawal from Jalalabad, Afghanistan. Though he had had no formal training in Anaesthesia he is very good practically. Apparently they have no post graduate training there, and the only textbook he had access to was Primary Anaesthesia by Maurice King.

Initially he had a problem with the language but he has made a great effort and is now quite conversant in English. As he is one of the most senior anaesthetists in six districts, I have insisted on his attending women undergoing Caesarean sections and participating in neonatal resuscitation. I have also managed to get some funds through a Norwegian NGO to buy simple equipment to help him to improve on his set-up.

Nasim also left his wife and two young children behind while he worked with us. He has since gone back, and Jalalabad is also on my list of ‘must visits’. I think this is important as I do need to see what equipment he has and how we can help and support him further.

First Fellow, from Page 3

If you think that being the first means low expectations, you are wrong. A novelty act draws everyone’s scrutiny, from the Chair and down to the anaesthesia techs, and your actions reflect on the Division and the future of the Fellowship. It is important to keep a close relationship with your Fellowship Director as he/she is the one who will mentor you through the challenges, protect you from non-educational duties, provide constructive criticism and steer you in the right direction. We held biweekly feedback sessions and made adjustments to provide me with the best experience. I owe my Fellowship Director many thanks for his unwavering support and dedication to my learning.

What about the residents? They are an intricate part of the equation. Initially I was viewed as a competitor for the “good” cases and that can form obstacles. However, as my role shifted towards supervising duties, the relationship improved and I learned as much from them as they from me.

If you are serious about research, a newly formed fellowship may not offer the structure to implement your ideas. Nevertheless, starting early, finding an interested faculty member and tapping into the institutional resources may speed up the process. At a minimum, there should be enough time and support for one or two case reports.

So what have I learned and would I ever do this again? I learned a lot about myself and have developed appreciation for the intra-working of the department. I have matured as an individual, grown in my anesthesia knowledge/skills and developed confidence in my actions. Below are the top five lessons I would pass to someone brave enough to follow this rewarding path. As far as doing this again, the answer is, “Yes”.

- Decide what interests you in pediatrics and mold your fellowship to that aim.
- Work closely with your Fellowship Director. He will weather you during a storm and mentor you in times of uncertainty.
- Be a representative of the Pediatric Division and the Fellowship. Not only are you opening doors for yourself, but also paving a way for all that follow.
- Develop a strong relationship with the Division heads/supervisors. You will need them as allies.
- Take full advantage of the departmental resources and work with, not against, the residents. They can be your best teachers.
Obstructive Sleep Apnea Syndrome

By Elizabeth Yun, MD
University of Wisconsin School of Medicine
Madison, WI

Adenotonsillectomy is one of the most common pediatric surgeries. Over the years, the indication for this surgery has changed from recurrent tonsillitis to obstructive sleep apnea syndrome (OSAS). These patients provide new challenges for the anesthetic management of this surgery. This article summarizes the issues associated with OSAS that impact the patient’s care during surgery. According to the consensus statement by the American Thoracic Society in 1996, OSAS is a disorder of breathing during sleep that is characterized by prolonged partial or complete upper airway obstruction that disrupts normal ventilation during sleep. This syndrome is found in all ages but has its highest incidence in preschool and school aged children.

The control of the pharyngeal muscles involves a complex balance of anatomical and neural factors that maintain upper airway patency. During sleep or loss of consciousness, these factors can become unbalanced and produce pharyngeal obstruction. With OSAS, adenotonsillar hypertrophy, neuromuscular disease, obesity and craniofacial abnormalities such as micrognathia, either by itself or in combination, contribute to the obstruction of the upper airway. With resulting decreased airflow, patients develop hypoxemia and hypercarbia. When OSAS is left untreated, patients face serious consequences from chronic hypoxemia and hypercarbia such as growth retardation, neurocognitive deficits, behavioral problems and pulmonary vasoconstriction leading to pulmonary hypertension and right ventricular failure.

The signs and symptoms of OSAS for children are different from adults. Symptoms of OSAS in pediatric patients include snoring, observed apnea, restless sleep, labored breathing during sleep, mouth breathing, poor school performance and behavioral issues, excessive daytime sleepiness and hyponasal speech. While loud snoring is a characteristic of OSAS, it is important to differentiate OSAS from primary snoring. Primary snoring is defined as snoring without obstructive apnea, frequent arousals from sleep and gas exchange abnormalities. Children with OSAS usually have normal weight and height or may even be underweight. However, obesity is starting to be recognized as an important risk factor in the development of OSAS. It is thought that obesity leads to sleep disorders breathing due to large amounts of tissue obstructing the upper airway, restrictive pulmonary disease leading to increased closing volumes, and increased pharyngeal floppiness.

The only true diagnostic test for OSAS is nocturnal polysomnography or sleep study. The test can be performed on children of all ages and quantifies ventilatory and sleep abnormalities. The results are scored based on criteria outlined in the American Thoracic Society Consensus Statement. At this time, what the correlation between abnormal polysomnography results and morbidity has not been established. For this reason, as well as the expense and lack of qualified technicians and facilities, polysomnography is not performed routinely on suspected OSAS patients. Other methods of OSAS evaluation have been tested, such as nap polysomnography and overnight oximetry. Unfortunately, these tests have a low negative predictive value and a full polysomnography is still considered necessary to completely evaluate the patient.

The definitive treatment for OSAS in children is the adenotonsillectomy. For otherwise healthy children, the surgery is curative with resolution of polysomnography findings in 75-100% of patients. Patients with obesity may not have the same relief of their symptoms, although they may receive some benefit from the surgery. Patients who cannot have the surgery or have persistent OSA, may benefit from CPAP or BiPAP. These modalities may be needed for an indefinite time period and are not tolerated in the younger age groups.

There are several challenges to the anesthetic management for adenotonsillectomies, the most critical being control of the upper airway. As mentioned before, the OSAS patient’s airway has a tendency to collapse during a general anesthesia. Therefore these patients are more likely to have respiratory issues on induction and emergence compared to those patients with no history of OSAS. Airway maneuvers, especially jaw thrust with the addition of the lateral position may help to alleviate the airway obstruction. Because of the blunted respiratory drive, these patients also have an exaggerated response to benzodiazepines and other anesthetic drugs. Recent studies suggest that patients with recurrent hypoxemia need less opiod for analgesia. Use of premedication with benzodiazepines, should be assessed and titrated based on the severity of the patient’s OSAS.

The most common airway for adenotonsillectomy is the endotracheal tube. The difficulty of the intubation depends on the child and the presence of any craniofacial abnormalities. Deep extubation has been used to decrease bleeding, however in the presence of residual anesthesia, the patient may not maintain adequate respiratory effort. Consequently, most patients are extubated awake.

Postoperatively, these patients are at higher risk of developing respiratory problems, such as atelectasis, postobstructive pulmonary edema and acute airway obstruction. If they have risk factors such as severe OSAS, age less than 3, cardiac complications of OSAS, neuromuscular disease, they are even more likely to have respiratory problems that may require CPAP, or reintubation in the recovery room and therefore should be watched in the intensive care unit overnight. These patients may also have episodes of oxygen desaturations and apnea in recovery. However the use of oxygen is controversial because its use may blunt the patient’s response to hypoxemia and prolong the apnea.

Although OSAS remains a great challenge for the anesthesiologist, with the proper preoperative assessment and preparation, intraoperative management and postoperative care, most patients do well and do not have any long term sequelae from the anesthesia care.

From the Editor: To accompany Dr. Yun’s nice review of sleep apnea, please go to the SPA website (http://pedsanesthesia.org) for the complete version of the Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea as set forth by the ASA Task Force in 2006. These guidelines make recommendations concerning the preoperative use of CPAP, considerations for sedation, considerations regarding intraoperative techniques, postoperative monitoring and disposition, as well as discharge criteria for outpatients. AKR
By Helen V. Lauro, MD, FAAP


This newly published hardcover textbook on genetic and dysmorphic syndromes of childhood has been released in its second edition.

A distinctive feature of this text is that all syndromes that start alphabetically are treated separately from those that start numerically. While all syndromes are listed encyclopedia-style, in this book they are consistently outlined by name, synonym, MIM number (i.e. syndrome listing in McKusicks’ Mendelian Inheritance in Man http://www.ncbi.nlm.nih.gov/omim,) HEENT/Airway, Chest, Cardiovascular, Neuromuscular, Orthopedic, GI/GU, Other, Miscellaneous, Anesthetic Considerations and Bibliography.) Of note, anesthetic considerations are always mentioned, even when no considerations for that particular syndrome exist. Appendices examine pertinent biochemical pathways which might be relevant to a particular syndrome (steroid, tyrosine metabolism, urea cycle, branched chain amino acids metabolism, glycogen metabolism, and porphyrias.)

An index has been deliberately omitted by the authors who deem it not in keeping with the underlying purpose of the book—quick reference for the practicing anesthesiologist. Nonetheless, this edition is extensively cross referenced whereby the alphabetical listing would be referred to the numeral listing, and the converse. Photographs, figures and tables are black/white.

While most useful to anesthesiologists to swiftly obtain critical knowledge prior to a case, it also may be considered for a clear, succinct review of necessary facts on various syndromes for residents, fellows, and anesthesiology practitioners.

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Data collection for the Pediatric Regional Anesthesia Database project began on April 1 at six pilot centers. The database is a venture of the Quality Assurance Committee of the AAP Section on Anesthesia and Pain Management in partnership with the Society for Pediatric Anesthesia. It is an ongoing prospective multicenter project to collect and examine the practice and the incidence and nature of complications of regional anesthesia and analgesia in infants and children. Data are entered locally using a secure web page, transmitted on-line, and stored and analyzed centrally by Axio Research, Inc. in Seattle, who helped develop the data collection tool with the principal investigators.

The first months of the project have been devoted to the collection of pilot data and the refinement and troubleshooting of the data entry website. In its first three and a half months, the pilot centers (The Children’s Hospital, Denver; Children’s Hospital and Regional Medical Center, Seattle; Children’s Hospital of Philadelphia; Children’s Memorial Hospital, Chicago; Lucille Salter Packard Children’s Hospital at Stanford; Children’s Hospital at Dartmouth) have accrued nearly 2000 cases. The steering committee is now ready to open the database project to additional interested centers, and is hoping that many pediatric anesthesia departments across the country will be interested in participating.

Requirements for participation are simple: a commitment and effective mechanism to accurately capture every regional anesthetic performed in the institution by its department of anesthesia, including the performance of audits and follow-up of complications. Because HIPAA protected information is not collected in the database, the study has qualified as consent-exempt by the IRB’s of all the participating institutions thus far.

Summary and benchmarking data will be available quarterly to each participating center, which can provide a valuable enhancement to the center’s quality assurance program. A complete information packet, including a detailed description of the study, screen shots of the data entry web pages, sample IRB submissions and instructions for users, will be available by the end of the summer.

For further information, contact David Polaner (polaner.david@tcデン.org) or Lynn Martin (lynn.martin@seattlechildrens.org).
We therefore have also relied upon contributions from industry e.g. Draeger, funding from a variety of societies, e.g. The Association of Paediatric Anaesthetists of Great Britain and Ireland, The Canadian Paediatric Society, The Canadian Anaesthesia Society, and the Society for Pediatric Anesthesia.

Some individuals have also made personal donations to support this effort. The WFSA has also established an Educational Foundation Chaired by Phillip Bridenbaugh. This foundation is making great efforts to establish more consistent sources of funding and anyone interested in making such a contribution is clearly welcome. My goal would be to greatly expand contributions from our medically advantaged country so that the funding of these programs is assured and so that we could even expand to develop programs in other parts of the world. If anyone has any ideas about how we can raise money or has a special contact that might we willing to sponsor a fellow in any of the programs this would be most welcome. Please feel free to contact me ejcote@partners.org at any time.

For me personally this has been a wonderful journey. I have had the good fortune to be a facilitator of these programs and I have been able to visit three of the four programs. I look forward to the Cape Town meeting in March 2008. Please join us at the WFSA and at the Pediatric Satellite meeting as well!